

IN THE CLAIMS:

1. (currently amended) A method for fabricating a detector assembly, said method comprising:

positioning a first scintillator array on a first ~~[[side]]~~ surface of a flexible member; ~~and~~

positioning a first collimator array on a second ~~[[side]]~~ surface of the flexible member; ~~and~~

~~positioning the flexible member between the first scintillator array and the first collimator array, wherein the first surface and the second surface are opposing surfaces that are substantially parallel and face away from each other.~~

2. (currently amended) A method in accordance with Claim 1 further comprising positioning a second scintillator array on the first ~~[[side]]~~ surface of the flexible member with an alignment tool comprising a body with at least two alignment datums extending therefrom, wherein each of the first and second scintillator arrays comprises at least one alignment datum.

3. (currently amended) A method in accordance with Claim 2 further comprising positioning a second collimator array on the second ~~[[side]]~~ surface of the flexible member with the alignment tool, wherein each of the first and second collimator arrays comprises at least one alignment datum.

4. (currently amended) A method in accordance with Claim 1 further comprising positioning a second collimator array on the second ~~[[side]]~~ surface of the flexible member with an alignment tool comprising a body with at least two alignment datums extending thereon, wherein each of the first and second collimator arrays comprises at least one alignment datum.

5. (original) A method in accordance with Claim 1 further comprising:

bending the flexible member into an arc; and

positioning the bent flexible member to receive radiation from a radiation source.

6. (currently amended) A method in accordance with Claim 1 wherein said positioning a first scintillator array comprises positioning the first scintillator array on a first ~~[[side]]~~ surface of a flexible member comprising graphite.

7. (currently amended) A method for fabricating a detector array, said method comprising:

providing a plurality of diode assemblies each comprising at least one alignment datum;

providing a plurality of scintillator packages each comprising at least one alignment datum;

providing a plurality of collimator arrays each comprising at least one alignment datum;

optically coupling each diode assembly with one respective scintillator package and one respective collimator array by aligning the alignment datums of the respective diode assembly, scintillator package, and collimator array using an alignment tool comprising a body with at least two alignment datums extending thereon, wherein the alignment tool does not form a component of the detector array; and

positioning a flexible member between one of the scintillator packages and one of the collimator arrays by positioning one of the scintillator packages on a first surface of the flexible member and positioning one of the collimator arrays on a second surface of the flexible member, wherein the first surface and the second surface are opposing surfaces that are substantially parallel and face away from each other.

8. (currently amended) A method in accordance with Claim 7 further comprising:

~~providing the flexible member;~~

~~positioning the diode assemblies and the scintillator packages on a first side of the flexible member; and~~

~~positioning the collimator array on a second side of the flexible member on the scintillator package.~~

9. (canceled)

10. (canceled)

11. (currently amended) A method of replacing a detector module in a modular detector assembly including at least one existing module including an alignment datum, said method comprising:

removing a module to be replaced from the assembly;

providing a replacement module comprising at least one alignment datum;

using an alignment tool comprising a body with at least two alignment datums extending thereon to position the replacement module in the assembly with respect to the existing module, wherein the existing module includes a scintillator array; and

placing a flexible member between a collimator array and the scintillator array by positioning the scintillator array on a first surface of the flexible member and positioning the collimator array on a second surface of the flexible member, wherein the first surface and the second surface are opposing surfaces that are substantially parallel and face away from each other.

12. (currently amended) A method for fabricating a plurality of detector assemblies, said method comprising:

providing a plurality of diode assemblies each comprising at least one alignment datum;

providing a plurality of scintillator packages each comprising at least one alignment datum;

providing a plurality of collimator arrays each comprising at least one alignment datum;

optically coupling each diode assembly with one respective scintillator package and one respective collimator array by aligning the alignment datums of the respective diode assembly, scintillator package, and collimator array to form a plurality of detector modules;

positioning a flexible member between one of the scintillator packages and one of the collimator arrays by positioning one of the scintillator packages on a first surface of the flexible member and positioning one of the collimator arrays on a second surface of the flexible member, the first surface and the second surface are opposing surfaces that are substantially parallel and face away from each other;

positioning N detector modules on a first member to form a first detector assembly;  
and

positioning M detector modules on a second member to form a second detector assembly, wherein M is not equal to N and the first and second detector assemblies are different sized.

13. (currently amended) A detector assembly comprising:

a flexible member comprising a first ~~[[side]]~~ surface and a second ~~[[side]]~~ surface;

a first scintillator array positioned on said first ~~[[side]]~~ surface of said flexible member; and

a first collimator array positioned on said second ~~[[side]]~~ surface of said flexible member, said first collimator array optically coupled to said first scintillator array, ~~wherein said flexible member is located between said first scintillator array and said first collimator array~~ wherein said first surface and said second surface are opposing surfaces that are substantially parallel and face away from each other.

14. (currently amended) An assembly in accordance with Claim 13 further comprising:

a second scintillator array positioned on said first ~~[[side]]~~ surface of said flexible member, said first and second scintillators each comprising an alignment datum, said first and second scintillators' alignment datums separated by a distance D; and

a second collimator array positioned on said second ~~[[side]]~~ surface of said flexible member, said first and second collimators each comprising an alignment datum; said first and second collimators' alignment datums separated by the distance D.

15. (original) An assembly in accordance with Claim 13 wherein said flexible member bent in an arc.

16. (original) An assembly in accordance with Claim 13 wherein said flexible member comprises graphite.

17. (currently amended) A detector assembly comprising:

a flexible member having a first ~~[[side]]~~ surface and a second ~~[[side]]~~ surface;

a diode assembly comprising at least one alignment datum, said diode assembly positioned on said member first ~~[[side]]~~ surface;

a scintillator package comprising at least one alignment datum, said scintillator package positioned on said member first ~~[[side]]~~ surface; and

a collimator array comprising at least one alignment datum aligned with said diode assembly alignment datum ~~and said diode assembly alignment datum~~, said collimator array positioned on said member second ~~[[side]]~~ surface, wherein said diode assembly, said scintillator package, and said collimator array are optically coupled, ~~wherein said flexible member is located between said scintillator package and said collimator array wherein said member first surface and said member second surface are opposing surfaces that are substantially parallel and face away from each other.~~

18. (original) An assembly in accordance with Claim 17 wherein said diode assembly comprises two alignment datums on opposing ends.

19. (original) An assembly in accordance with Claim 18 wherein each said scintillator package and said collimator array comprises two alignment datums on opposing ends of both said scintillator package and said collimator array.

20. (currently amended) An imaging system comprising:

a radiation source;

a computer operationally coupled to said radiation source; and

a radiation detector assembly operationally coupled to said computer, said detector assembly comprising:

a flexible member having a first ~~[[side]]~~ surface and a second ~~[[side]]~~ surface;

a diode assembly comprising at least one alignment datum, said diode assembly positioned on said member first ~~[[side]]~~ surface;

a scintillator package comprising at least one alignment datum, said scintillator package positioned on said member first ~~[[side]]~~ surface; and

a collimator array comprising at least one alignment datum aligned with said diode assembly alignment datum ~~and said diode assembly alignment datum~~, said collimator array positioned on said member second ~~[[side]]~~ surface, wherein said diode assembly, said scintillator package, and said collimator array are optically coupled, ~~and wherein said flexible member is located between said scintillator package and said collimator array wherein said member first surface and said member second surface are opposing surfaces that are substantially parallel and face away from each other.~~

21. (previously presented) An imaging system in accordance with Claim 20 wherein said radiation detector is an x-ray detector.

22. (currently amended) An assembly in accordance with Claim 17 wherein said member first ~~[[side]]~~ surface is opposite and substantially parallel to said member second ~~[[side]]~~ surface.

23. (cancelled)

24. (previously presented) A method in accordance with Claim 1 wherein the flexible member is X-ray translucent.

25. (previously presented) A method in accordance with Claim 11 wherein the alignment tool includes a channel configured to facilitate an alignment of the scintillator array, the collimator array, a diode assembly, and the flexible member.

26. (new) A method in accordance with Claim 2 wherein the alignment tool is separate from the flexible member.

27. (new) A method in accordance with Claim 4 wherein the alignment tool is separate from the flexible member.

28. (new) A method in accordance with Claim 7 wherein the alignment tool is separate from the flexible member.

29. (new) A method in accordance with Claim 11 wherein the alignment tool is separate from the flexible member.